TECHNICAL MEMORANDUM

DATE: April 15, 2026

FOR: Web Portfolio / Project Showcase

FROM: Window & Doors Project Management Division

SUBJECT: High-Impact Fenestration Systems Port St. Lucie, FL

1. Overview of Improvements

This memorandum provides the engineering documentation and compliance evaluations required under Chapter 713 of the Florida Statutes and the 2023 Florida Building Code (8th Edition) for the retrofitting of the envelope at the referenced residential property. The verified scope of work involves the comprehensive removal of existing non-impact units and the subsequent installation of engineered **High-Impact Window and Sliding Glass Door Systems** rated for the High-Velocity Hurricane Zone (HVHZ) and wind-borne debris zones.

2. Product Specifications & Engineering Evaluation Metrics

The replacement structural envelope assemblies utilize approved architectural systems engineered by **Mr. Glass Doors & Windows Manufacturing, LLC**. Comparative analysis and compliance validations conform strictly to Florida Department of Business and Professional Regulation (DBPR) metrics:

Component A: Aluminum Sliding Glass Door Systems (L.M.I.)

- **System Model:** Series MG-1000 Aluminum Sliding Glass Door
- **Florida Product Approval Number:** FL #19092
- **Engineering Design Evaluation:** Al-Farooq Corporation (Installation Drawing # W15-83)

- **Certified Performance Thresholds:** Maximum Design Pressure of **+120 PSF / -140 PSF**
- **Impact Rating:** Rated for **Large & Small Missile Impact** (Debris-resistant / No shuttering required)
- **Testing Criteria Met:** TAS-201, TAS-202, TAS-203, ASTM E283, ASTM E330, ASTM E331, and ASTM F842.

Component B: Aluminum Single Hung Window Systems (L.M.I.)

- **System Model:** Series MG-350 Aluminum Single Hung Window
- **Florida Product Approval Number:** FL #41887
- **Engineering Design Evaluation:** Al-Farooq Corporation (Installation Drawing # 23-02F)
- **Certified Performance Thresholds:** Design Pressure of **+65 PSF / -80 PSF**
- **Impact Rating:** Rated for **Large Missile Impact**
- **Glazing Core Profile:** 5/16" Overall Laminated Glass (utilizing Kuraray Trosifol PVB interlayer matrix).

Component C: Aluminum Fixed Picture Window Systems (L.M.I.)

- **System Model:** Series MG-350 Aluminum Fixed Window
- **Florida Product Approval Number:** FL #41889
- **Engineering Design Evaluation:** Al-Farooq Corporation (Installation Drawing # 23-03F)
- **Certified Performance Thresholds:** Design Pressure of **+65 PSF / -65 PSF**
- **Impact Rating:** Rated for **Large Missile Impact**
- **Compliance Certification:** Full architectural shape variance calculations map directly into structural boundaries per FBC structural requirements.

3. Mandatory Engineering Performance Testing Protocols

All architectural envelope structural elements deployed on this project have successfully sustained empirical testing executed by certified independent third-party laboratories (Fenestration Testing Laboratory and Hurricane Engineering & Testing, Inc.). Design constraints adhere strictly to the following parameters:

- **Air Infiltration Leakage Verification:** Verified under **ASTM E283** metrics.
- **Uniform Static Air Pressure:** Validated via **ASTM E330 & TAS 202** procedures to withstand severe cyclonic load variables.
- **Water Penetration Defense:** Evaluated via **ASTM E331 / TAS 202** protocols to counteract wind-driven precipitation.
- **Forced Entry Resistance Evaluation:** Certified compliant via **ASTM F842 / F588** parameters.

4. Structural Substrate Anchor Protocols

The installation phase demands strict alignment with the specific engineering limits detailed in the structural portfolios:

1. **Substrate Interfacing:** Fasteners penetrating concrete, masonry blocks, or secondary wood bucks must reach specified embedment depths past superficial stucco and external wall dressing lines.
2. **Fastener Specifications:** Installations into concrete structures utilize high-tensile 1/4" or 5/16" diameter DeWalt UltraCon structural anchors. Shims must remain strictly high-impact, non-metallic, and non-compressible.
3. **Load Distribution Matrix:** All load paths transfer localized wind pressures from the fenestration frame segments cleanly into the core residential structural elements.

5. Engineering Conclusion

To the best of our professional knowledge, information, and clinical engineering evaluation, the custom window and sliding door configuration designated for the project fully conforms to the structural and safety provisions mandated by the **2023 Florida Building Code**.